Introduction
The pre-hospital emergency care is important in any disasters. It is important to keep track of each patient’s status and location continuously. If the emergency medical technicians know the statuses and locations of the patients, they can provide suitable pre-hospital emergency care to the patients immediately. Coordination of branches in the government such as fire service department, hospital authority, police force and the like can lead to efficient rescue.

Objective
- Increasing the rescue efficiency in accidents
- Achieving wireless real time monitoring of patients
- Coordinating different rescue parties

Wireless Health Monitor System (sensor part)
Heartbeat rate sensor
- Using electrocardiogram (ECG) to measure
- Placing electrodes on patient’s chest
- Measuring the potential difference between the electrodes
- Filtering and amplifying the signals

Blood pressure sensor
- Using “photoplethysmogram” (PPG)
- Wearing a finger cuff with infrared emitter and sensor
- Measuring the strength of infrared at the receiver. The strength of the received infrared changes when the blood pressure changes.

Wireless system
- Using Radio Frequency (RF) motes
- Installing RF motes in WLD of patients, command center and PDAs of medical technicians
Results and Conclusion

ECG Sensor

- An ECG is the recording on the body surface of the electrical activity generated by the heart.
- The bandwidth of ECG output is 0.05 – 40Hz.
Consisting of an instrumentation amplifier (IA) followed by a right leg drive amplifier and two
bandpass filters (BPF).

PPG Sensor

- The PPG is measured by the change of IR intensity when IR propagates through the
finger of patient.
- The bandwidth of PPG output is 0.3 – 10 Hz.
- Consisting of an op-amp followed by a BPF.

Finger Cuff

- Minimizing the environmental influence to the system

Software

- Software at the PC plots the heartbeat rate and the blood pressure periodically

ECG Signal

PPG Signal